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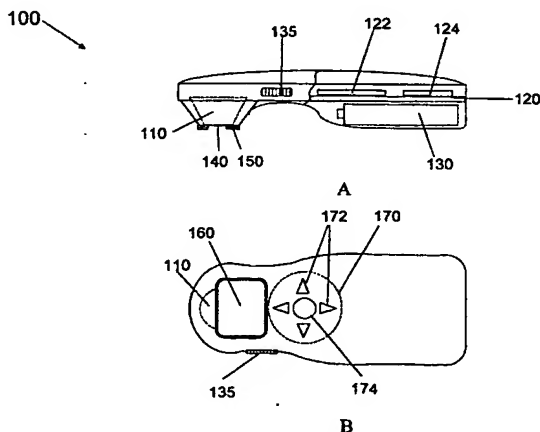
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(54) Title: COMPACT SPECTRAL READERS FOR ACCURATE COLOR DETERMINATION



(57) Abstract: Systems and methods for providing spectral measurements are described. In one embodiment, a spectral measuring device comprises at least one radiation source configured to provide N ($N \geq 2$) linearly independent illuminant sources characterized by M ($M \geq N$) wavelength channels in a predetermined wavelength range; a sensor unit including at least one sensor, configured to be in optical communication with the radiation sources and an object; a memory storing an illuminant characterization matrix including spectral characteristics of the N illuminant sources in the M wavelength channels; and a processor configured to provide spectral responses of the object in the M wavelength channels, based at least in part on the illuminant characterization matrix. The embodiments of the invention can be used to construct a new class of compact spectral measuring devices, such as handheld color measuring devices.